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MACHINE WITH CUP-SHAPED ARMATURE AND AIR GAPAbstract of The Disclosure

An electro-mechanical machine is disclosed which has a field producing assembly providing a cup-shaped air gap which is circumferentially disposed about an axis of rotation. The field assembly produces a 15 circumferential distribution of magnetic flux in the cup-shaped air gap having n periodic extremes of flux density about the axis. A cup-shaped electrical assembly or armature is disposed in the air gap and the armature and field assembly are relatively rotatable. The armature has a circular array of C non-overlapping coils on each of its inner and outer faces with the coils on one face 20 being angularly offset from the coils on the other face. Moreover, since the air gap and coils are cup-shaped, it is possible to achieve, for a machine of given diameter and form factor, a horsepower and torque which was previously possible only with substantially larger disk-type motors. That is because the total volume of the air gap and coils correspond to those of a much larger 25 diameter disk-type motor.

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